Bambra C.

Defamilisation and welfare state regimes: a cluster analysis.

***International Journal of Social Welfare* 2007, 16(4), 326-338.**

Defamilisation and welfare state regimes: a cluster analysis

Clare Bambra

Running title: Defamilisation and welfare state regimes

Key words: typologies, cluster analysis, Gender, welfare state regimes, defamilisation

Accepted for publication September 29, 2006

Correspondence to:

Dr. Clare Bambra, Lecturer
Wolfson Building
Durham University
Queens Campus
Stockton on Tees
TS17 6BH
UK
Tel. +44 191 33 40 417
Fax +44 191 33 40 361
E-mail: clare.bambra@durham.ac.uk

Abstract

The role of gender as a source of social stratification within and between welfare states is increasingly being paid attention to in the welfare state regimes debate. Defamilisation has emerged as a potentially important concept in this context, as it enables the comparison and classification of welfare states in terms of how they facilitate female autonomy and economic independence from the family. However, the methodology used or the understanding of the concept, limits existing defamilisation typologies. These typologies have therefore been unable to provide an accurate examination of welfare state variation using this concept and, indeed, have in some ways undermined and devalued the usefulness of defamilisation. This article uses cluster analysis to build upon previous research and resurrect the concept of defamilisation. In contrast to existing work in this area, the analysis produces a five-fold typology of welfare state regimes. This typology differs in many ways from existing models of welfare state regimes, although some core countries emerge as regime ideal types. The article concludes by reflecting on the broader implications of cluster analysis, and defamilisation, for welfare state modelling and future research in this area.

Introduction

Welfare state modelling is a longstanding strand within the comparative social policy literature (Cutright, 1965; Esping-Andersen, 1990; Therborn, 1987; Titmus, 1974; Wilensky, 1975; Wilensky & Lebraux, 1958) and there is now a burgeoning amount of work (Pierson, 1998) about welfare state regimes and welfare state typologies (see Table 1). One of the most extensive critiques of this modelling has been made on the basis of gender (Bambra 2004; Borchost, 1994; Bussemaker & Kersbergen, 1994; Daly, 1994; Gornick & Jacobs, 1998; Hobson, 1994; Langan & Ostner, 1991; Lewis, 1992; Lewis & Ostner, 1995; O'Connor, 1996; Orloff, 1993; Sainsbury, 1994, 1999; Siaroff, 1994; Trifiletti, 1999) as welfare typologies have assumed an overtly genderless, but covertly androcentric, approach (Sainsbury, 1994) and have thereby ignored gender as a form of social stratification (Arts & Gelissen, 2002). The few attempts at modelling that have acknowledged that relationships with, and experiences of, welfare states are mitigated by gender (Siaroff, 1994) have traditionally fallen into one of three types: 'gendering' existing welfare state typologies, such as the work of Orloff (1993) or O'Connor (1996) on Esping-Andersen's three worlds typology (Esping-Andersen, 1990, 1999); highlighting aspects of welfare state models that also work for women (Gornick & Jacobs, 1998; Trifiletti, 1999); or creating alternative more gender focused systems of welfare state classification (Lewis, 1992; Siaroff, 1994; Lewis & Ostner, 1995; Sainsbury, 1999; Pascall & Lewis, 2004). Prominent within this latter approach are Lewis's breadwinner model (Lewis, 1992; Lewis & Ostner, 1995; Pascall & Lewis, 2004) and Sainsbury's (1999) work on public childcare provision. However, these approaches have tended to be limited by the focus on only one indicator, a small number of countries or a static, qualitative concept (Esping-Andersen, 1999). This has led to the more recent development of 'defamilisation' typologies (Esping-Andersen, 1999; Korpi, 2000; Author reference, 2004).

Table 1 in about here

The concept of defamilisation is often defined as 'the degree to which individual adults can uphold a socially acceptable standard of living, independently of family relationships, either through paid work or through social security provisions' (Lister, 1997: 173). This concept acknowledges that often, 'the functional equivalent of market dependency for many women is family dependency' (Esping-Andersen, 1999: 45). Defamilisation can therefore be utilised as a way of testing the extent to which welfare states, and welfare state regimes, facilitate female autonomy and economic independence from the family. The concept has been used intermittently within welfare state modelling (Taylor-Gooby, 1996; Esping-Andersen, 1999; Pascall & Manning, 2000; Korpi, 2000; Author reference, 2004). However, it has often been inaccurately defined and operationalised by commentators as the extent to which welfare states decommodify the family. For example, both Esping-Andersen (1999) and Korpi (2000) utilise this conceptualisation of defamilisation and their typologies subsequently rely either on factors that assess the extent to which welfare states support the family (Esping-Andersen, 1999) or on different family models (Korpi, 2000). Korpi's family support typology and Esping-Andersen's attempt to operationalise defamilisation are problematic because, instead of examining the extent to which welfare states facilitate women's autonomy and independence, their work actually assesses the extent to which welfare states support the family. For example, Korpi measures the type of family support provided by different welfare states, not the support given specifically to women. Similarly, Esping-Andersen is essentially concerned with the decommodification of family life, the extent to which the welfare state enables the family to survive independently of the market. It is perhaps therefore not very surprising that the results of these two approaches to defamilisation closely match Esping-Andersen's (1990) original 'androgynous' three worlds of welfare typology (see Table 1).

An alternative definition of defamilisation, one that is much more related to the broader gender-based critique of welfare state modelling outlined earlier, has been operationalised in a previous article by this author (2004). Drawing on Taylor-Gooby (1996), this definition of defamilisation refers to the extent to which the welfare state enables women to survive as independent workers and decreases the economic importance of the family in women's lives. Defamilisation in this conceptualisation is therefore concerned with women's freedom from the family, rather than the freedom of the family (Author reference, 2004). Subsequently, and unlike the defamilisation of Korpi or Esping-Andersen, it was not just about family policy but about the extent to which the broader welfare state environment facilitates the participation of women in society. That is not to say that policies aimed at the family itself (such as public provision of childcare) will not also have an indirect effect on women's independence from the family, but that this particular conceptualisation of defamilisation focuses purely on the context in which the position of women is or is not promoted. In the previous article (Bambra, 2004), this author used four factors to create a defamilisation index that measured the relationship between women, the state and the family: (1) Relative female labour participation rate; (2) Maternity leave compensation; (3) Compensated maternity leave duration; and (4) Average female wage. However, the resulting defamilisation typology again broadly confirmed Esping-Andersen's 'three worlds' typology with the production of three groupings of welfare states with broadly similar country compositions (Table 1).

This earlier work thereby suggested that taking a more overtly gendered approach to welfare state modelling had little impact on the resulting typology and was perhaps therefore an unnecessary endeavour (Author reference, 2004). However, this operationalisation of defamilisation was extremely problematic as it copied the Esping-Andersen methodology of index-based regime construction (Esping-Andersen, 1990). Esping-Andersen's method has

been subject to extensive methodological criticism particularly, around the additive nature of the indexes and the reliance upon averaging (Castles and Mitchell, 1993; Kangas, 1994; Ragin, 1994; Pitruzello, 1999), the use of weighting (Fawcett and Papadopoulos, 1997; Author reference, 2006), and also for the use of one standard deviation around the mean to classify the countries into regimes (Fawcett and Papadopoulos, 1997; Author reference, 2006) which meant that the resulting typology could only ever be three-fold: regime classification is either above (high/Social Democratic), below (low/Liberal), or between (medium/ Conservative) one standard deviation around the mean (Esping-Andersen, 1990: 54). In this way a four- or five-fold classification of welfare states is methodologically impossible (Papadopoulos, 1998; Author reference, 2006). In replicating this method, the results of the earlier (Bambra, 2004) defamilisation typology were of limited value, not least because it was impossible to produce anything other than three regimes. However, it is important that the woman-focused definition of defamilisation used within this work is not also undermined by the methodological problems of index construction or how the resulting typology was interpreted. The concept remains as a useful means of comparing both between and within welfare states in terms of women's independence and it also reflects the broader and now largely unacknowledged gender criticism of welfare state modelling.

The concept of defamilisation retains much value for welfare state modelling and comparative social policy. It is the purpose of this article therefore to resurrect the defamilisation concept for welfare state modelling by using a more robust method of classification: cluster analysis (Kangas, 1994; Pitruzzello, 1999; Gough, 2001). The resulting welfare state typology(s) will be then compared with the original defamilisation typology (Author reference, 2004), other defamilisation typologies (Esping-Andersen, 1999; Korpi, 2000), and mainstream welfare

state classifications (Table 1). The article will conclude by reflecting on the broader implications of the analysis for welfare state modelling and future research in this area.

Methods

Cluster analysis, despite having many obvious benefits for welfare state classification, is a surprisingly under-used approach in comparative social policy (Gough, 2001). In cluster analysis, countries are classified on the basis of the combination of predetermined selection criterion (defamilisation factors) so that each country in a cluster is similar to the others in that cluster and different from countries in the other clusters (Gough, 2001; Grimm and Yarnold, 2000). In this way, the clusters represent different regime types. There are two more commonly used forms of cluster analysis: hierarchical and K-means (Pitruzzello, 1999; Gough, 2001). Hierarchical cluster analysis locates the closest pair of countries and combines them to form a pair, this – joining cases into pairs or joining two pairs – continues until all cases are in one cluster. Once countries are joined in a cluster they remain joined throughout the rest of the analysis (Gough, 2001; Cramer, 2003). In this way, the clusters emerge from the data, facilitating the emergence of welfare state taxonomies. However, hierarchical cluster analysis is rather atheoretical and so it is often conducted alongside K-means cluster analysis (Pitruzzello, 1999; Gough, 2001; Grimm and Yarnold, 2000; Cramer, 2003). K-means enables the a priori specification of the number of clusters to be formed (Gough, 2001). This has a secondary benefit for the classification of welfare states on the basis of defamilisation, as it enables the testing of the number of different types of welfare state regimes (3, 4, 5) suggested by the welfare state modelling literature (see Table 1). All calculations in this article use squared Euclidean distance and scale standardised versions of the defamilisation factors. Analysis was carried out using SPSS version 11.0.

The analysis uses three of the original four measures of defamilisation (Author reference, 2004): (1) Relative female economic activity rate (expressed as the difference between the female and male economic activity rate and thereby controlling for variations in national economic activity rates); (2) Maternity leave compensation; and (3) Compensated maternity leave duration. The original fourth factor – average female wage expressed as a percentage of male average wage (Author reference, 2004) – has been excluded from the cluster analysis for two reasons: firstly, there was no data for four (Canada, Italy, Spain and the USA) of the twenty-one countries used in this new analysis (see Table 2); and secondly, it was significantly correlated (r -.659, p=0.01) with factor one – relative female economic activity rate – and the results of cluster analysis are undermined by multicolinearity (Grimm and Yarnold, 2000). It should be noted that the first measure, relative economic activity rate, differs only slightly from the relative labour market participation rate used in the earlier analysis (Bambra, 2004).

These quantitative indicators were 'specifically selected to highlight a certain aspect of how the welfare state undermines female dependency on the family and facilitates their economic independence' (Bambra, 2004: 204). Relative female labour participation rate has been chosen because it indicates the extent to which the economy of the welfare state facilitates female employment. It is 'relative' because it is measured in relation to male employment levels, thus reducing the influence of different national unemployment rates. This factor provides a measure of one way in which women gain economic independence from the family, enter the public realm and gain access to certain social rights (Meyer, 1994: 67–68). Maternity leave compensation and compensated maternity leave duration are intended to show whether the welfare state provides economic support when women decide to have children or if it encourages reliance on the family. Maternity leave compensation shows the

level of replacement income that women receive when they are absent from work due to pregnancy, whereas compensated maternity leave duration indicates the length of time for which women can take paid maternity leave (Bambra, 2004).

Table 2 in about here

The data for the defamilisation factors relate to twenty-one countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Norway, The Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, UK and the USA. These countries represent the original eighteen OCED countries used by Esping-Andersen (1990) and later by Castles and Mitchell (1993), plus the Mediterranean countries added by Leibfreid (1992), Ferrera (1996) and Bonoli (1997). This analysis therefore offers a broader range of countries than previous defamilisation (Esping-Andersen, 1999; Korpi, 2000; Author reference, 2004) or gender-focused typologies (Lewis, 1992; Lewis & Ostner, 1995; Pascall & Lewis, 2004; Sainsbury, 1999; Siaroff, 1994). Data were obtained from the United Nations (UN, 2005) for the years 2003 and 2004. The data is therefore much more recent than that used in other typologies [e.g. Bambra (2004) uses data from 1996 and 1997].

Results

The unstandardised data for each of the defamilisation measures are outlined in Table 2 and Figures 1 to 3 show the spread of country scores for each of the three measures. Patterns are evident even in these univariate graphics, e.g. the Nordic countries have the lowest relative female economic activity rate showing that the gap between male and female economic activity is the least in these countries (Figure 1) and they are amongst the highest countries in terms of maternity leave compensation rates and compensation duration (Figures 2 and 3). The positioning of the other countries is rather more mixed, but Australia and the USA exhibit

extremely low scores for maternity leave compensation rates and compensation duration (Figures 2 and 3), although the gap in these countries between male and female economic activity is comparatively small (Figure 1).

Figures 1-3 in about here

The results of the hierarchical cluster analysis are shown in the proximity matrix (Table 3) and the first dendrogram (Figure 4). The proximity matrix reveals the distances between the countries when they are clustered using the three defamilisation measures. Certain countries are very closely located and are quickly clustered to one another: e.g. Austria, Germany, The Netherlands, New Zealand, France and Portugal are all less than 0.1 in distance from one another. This suggests that these countries are very similar in terms of the combined defamilisation variate. Similarly, other countries pair up at an early stage of the analysis. For example, Belgium and Switzerland are 0.2 apart, Greece and Spain are 0 in distance, and Australia and the USA are also 0 in terms of distance from one another. Other countries are clearly more seperate from one another, e.g. Japan and Finland are 11.6 away from one another, and Canada and Spain are 6.3 apart. Perhaps most notably, the proximity matrix reveals that the pairings of Sweden and Norway, and Australia and the USA are very distant from the rest of the matrix. Sweden and Norway are 2.2 away from one another but they are very distant from the other countries; Norway is closest to Denmark, but this is still at a distance of 5.2; and Sweden is even more distant as, aside from Norway, the countries closest to Sweden are Finland, at a distance of 10.4 and Denmark at 12.3. Similarly, Australia and the USA are 0 away from one another but the closest other country to Australia is Canada at a distance of 5.0, and for the USA, the closest countries are Canada at 4.8 and the UK at 5.8. These two pairings represent the extremes of the proximity matrix, as they are most distant from one another: Sweden is 31.4 away for Australia and 30.8 away from the USA; and the

distance between the USA and Norway is 23.8 and the distance between Norway and Australia is 24.2. This is unsurprising given the polarised scores of these countries, especially for the maternity related variables (as shown in the univariate graphics Figures 1-3).

Table 3, Figure 4 in about here

The dendrogram (Figure 4) also highlights the separation of Sweden and Norway, and Australia and the USA from the other countries. They do not combine with any of the other countries or clusters until the last stages of the combination process. The graphical presentation of the dendrogram also suggests that the hierarchical analysis of defamilisation produces a typology of five welfare state clusters (three broad clusters plus the outlying pairs). The largest cluster consists of Austria, The Netherlands, Germany, New Zealand, France and Portugal, which are later joined by the pairing of Belgium and Switzerland, and Ireland. The second cluster starts with the pair of Greece and Spain; these are then combined with Italy, and later Japan. Cluster three combines the pairs of Denmark and Finland and Canada and the UK. The fourth cluster consists of the pairing of Australia and the USA, and the final cluster is that of Sweden and Norway. Interestingly, when the hierarchical analysis is rerun without the cases of Australia, USA, Sweden and Norway, the three other clusters remain fairly static and the only real changes are that Japan, Italy and particularly the UK are made more distant from the other cases (see Figure 5). This reinforces the fact that in the analysis of all twenty-one countries, the four cases (Australia, Norway, Sweden and the USA) are very distant from the others, but it also suggests that they are not overly influencing the nature of the other clusters.

Figure 5 in about here

The K-means cluster analysis is used to examine further the five-fold typology produced by the hierarchical cluster analysis, and also to test the different number of welfare state regime types suggested by the mainstream welfare state modelling literature (as outlined in Table 1). K-means was conducted for K=2, K=3, K=4 and K=5. The typologies produced by the various K-means analysis are presented in Table 4. Overall, the K-means confirms a large degree of the results of the hierarchical analysis, as certain countries are clustered together throughout the analysis regardless of the changing number of clusters: Sweden and Norway, Greece, Spain, Italy and Japan, and Austria, The Netherlands, Germany, New Zealand, France and Portugal. Sweden and Norway remain isolated together throughout the K-means, even in K=2. However, the USA and Australia are initially joined with other cases, most notably Canada, until they too are separated out at K=4. Furthermore, in K=4 and K=5 the clusters very closely resemble those produced by the hierarchical analysis. For example, in K=4, Greece, Spain, Italy and Japan, which formed cluster two in the hierarchical analysis, are also together in cluster three. Although in K=5 they separate, with Spain and Greece joining cluster two, it should be noted that some countries are closer to the cluster centre than others and that Greece is 1.01 away from the centre and Spain 1.18. This suggests that they are less central to that cluster than other cases that exhibit smaller distances such as The Netherlands, Austria or Germany. Similarly, the largest cluster identified by the hierarchical analysis remains relatively intact across the various K-means analysis, and at K=5 only Ireland is absent from the comparable cluster two. The only other country to fall into a different cluster than expected from the hierarchical analysis is Denmark which is in cluster two in K=5 rather than alongside Finland, Canada and the UK in cluster four. It should be noted that Denmark is the country furthest away from the centre of cluster two (1.4). This means that there are actually only four countries with different cluster memberships under the K=5 than that found in the hierarchical analysis: Denmark, Ireland, Greece and Spain.

Table 4 in about here

The K-means analysis therefore provides further support for the existence of a five-fold defamilisation typology. The K-means also provides other useful information about the clusters, as an examination of the distances between countries and the five cluster centres shows that some cases form the basis of a particular cluster, whilst others are less closely identified with it. Countries central to a cluster are: the USA in cluster one (distance from centre 0), Austria and The Netherlands in cluster two (distance from centre 0), Japan in cluster three (distance 0), the UK in cluster four (distance 0), and Sweden in cluster five (distance 0). Others countries are less closely associated with the cluster in which they end up, e.g. example, Denmark (1.4), Greece (1.01) and Spain (1.18) in cluster two, Finland (1.84) in cluster four and Norway (1.47) in cluster five. This suggests that some countries are harder to classify than others and that their cluster membership is more fluid. It also suggests that certain core countries are fundamentally different from one another in terms of the combined defamilisation variate and therefore form the basis of distinct clusters.

Table 5 shows the final cluster centres and how each of the three defamilisation measures contributes to discrimination between the clusters. The F-statistic (calculated using analysis of variance) shows which of these measures contributes the most to discriminating between the clusters (the larger the F-statistic the larger the discriminating power of the variable). For example, in the five cluster typology (K=5) the economic activity variable has a negative influence on clusters one, three and four but a positive influence on clusters two and five, and the maternity leave compensation variable has a negative influence on clusters one, four and five but a positive influence on clusters two and three. The maternity leave duration variable contributed the most to discriminating between the clusters in all of the typologies:

(respectively F=83.28, F=50.83, F=76.58, F=75.64), although in K=5, the maternity compensation variable began to exert more influence (F=46.23). Table 6 shows the distances between the final cluster centres and thereby indicates the extent to which they are similar or different from one another. In the five-fold typology, clusters two (Austria, The Netherlands etc.) and five (Norway and Sweden) are most similar to one another (1.48). Interestingly, the two most distant clusters are not one (USA and Australia) and five (Sweden and Norway), but one and three (Ireland, Italy and Japan) at a distance of 5.20.

Tables 5-6 in about here

Discussion

The results of the hierarchical and K-means cluster analysis were very similar and therefore fairly conclusive: when analysed using cluster analysis, defamilisation produces a five-fold typology of welfare states with three broad clusters and two pairs (see Table 7). This undermines the three-fold typologies of Esping-Andersen (1990; 1999), Korpi (2000) and Bambra (2004), and lends support to those that assert the existence of more than three regime types (Leibfreid, 1992; Castles and Mitchell, 1993; Ferrera, 1996; Bonoli, 1997; Korpi and Palme, 1998; Pitruzzello, 1999). This analysis particularly reinforces the decommodification cluster analysis of Pitruzzello which also found in favour of a five-fold classification of welfare states (1999). However, the country clusters produced by the defamilisation analysis and the regimes within the literature typologies differ substantially in content (Table 7 compared with Table 1): generally within the welfare state modelling literature, the Nordic countries are clustered together (Social Democratic); the Anglo-Saxon countries are placed in either one (Liberal) or two (Liberal and Radical) regimes; and the Continental European countries and Japan are placed into one (Conservative), two (Conservative and Latin), or three (Conservative, Latin and Bismarckian) regime types. There are only minor similarities

between these regimes and the defamilisation clusters, most notably the existence of a broad Continental cluster (cluster two in Table 7). However, the overall picture is very different from that expected from the mainstream welfare state regime literature, and the clusters also differ significantly from previous analyses conducted using the concept of defamilisation. All three previous defamilisation typologies (Esping-Andersen, 1999; Korpi, 2000; Bambra, 2004) promoted a three-fold division of welfare states and, even allowing for the fact they only used eighteen countries compared with the twenty-one in the cluster analysis, there is very little overall similarity between their results and those presented here, not least because the defamilisation cluster analysis resulted in a five-fold division of welfare states.

Table 7 in about here

However, on closer examination, it is clear that very few of the mainstream typologies actually agree with one another over the exact classifications of all countries: of the seven mainstream typologies outlined in Table 1 (Bonoli, 1997; Castles & Mitchell, 1993; Esping-Andersen, 1990; Ferrera, 1996; Korpi & Palme, 1998; Leibfreid, 1992; Pitruzzello, 1999), only seven country classifications are really agreed upon by all seven (plus Greece, Spain and Portugal by those that include them): Canada and the USA; Germany (and to a lesser extent The Netherlands); Norway and Sweden (and to a lesser extent Denmark). Similarly, the defamilisation typologies of Esping-Andersen (1999), Korpi (2000), and Author reference (2004), whilst all concluding in favour of a three-fold typology of welfare states, only actually agree on the positioning of nine countries (fifty per cent of the cases examined): Australia, New Zealand and the UK; France, Germany and Italy, Denmark, Norway and Sweden. This suggests that some countries are considered to be more core to certain regime types than others, and that the regime membership of the majority of cases is disputed. This has important implications for the interpretation of the results of the defamilisation cluster

analysis. Both the hierarchical and the K-means cluster analysis resulted in a five-fold typology but within each of the clusters, it is clear that some countries are more central than others. For example, cluster one consists of only the USA and Australia; in cluster two Germany, Austria and The Netherlands are the core countries (closest in distance to the cluster centre – see Table 4); in cluster three it is Japan, for cluster four it is the UK; and cluster five again is just a pair – Norway and Sweden. This follows the broad pattern of the existence of certain core countries, particularly those towards the extremes, in all types of welfare state classification (Table 1). This means that the results of the defamilisation analysis, whilst perhaps very different in how certain less clear countries are classified or indeed on the number of regimes suggested, share certain core characteristics with the rest of the welfare state classification literature.

Overall then, this suggests that some countries are more homogeneous across different policy areas and are therefore always found in the same welfare state regime regardless of which particular area is being examined: the USA, Germany and The Netherlands, and Denmark, Norway and Sweden emerge as the overall most distinctive and thereby core countries in all welfare state modelling. The other countries are more heterogeneous in their policy profile and are therefore much more vulnerable to exhibiting fluctuating regime membership depending on which policy is under examination (Author reference, 2005b). These variations across different policy areas have led to the questioning of the entire concept of welfare state regimes and the possibility of accurate welfare state typologies (Kasza, 2002). However, certain core countries, which are found to be distinctive regardless of what particular variables or policy provision is under examination, are the ‘ideal type’ regimes around which the others cluster and their proximity to one or another may vary across different policy areas. Clearly, more work on countries, such as Japan or Italy which are more difficult to classify, is

required, and the fluid nature of classification needs to be recognised; the welfare state regimes concept does not therefore need to be abandoned but requires an acknowledgement that some countries are more easily classified than others. Defamilisation, or other concepts that reflect gender stratification, may therefore be useful in future welfare state modelling by facilitating a more common classification of these disputed cases.

In the previous analyses of defamilisation, the similarities between the defamilisation regimes and more mainstream typologies led to the authors concluding that separate gendered or defamilisation analysis was not necessary (Esping-Andersen, 1999; Bambra, 2004). In the cases of Esping-Andersen (1999) and Bambra (2004), the similarities were due largely to the method of analysis (Bambra, 2006), and for Korpi (2000) and Esping-Andersen (1999) the flawed conceptualisations of defamilisation may also have been influential. In contrast, the more methodologically robust cluster analysis in this article, whilst lending some support to the idea of core regime countries, has highlighted significant differences between mainstream and defamilisation-based analysis. However, whether these differences are sufficient enough to support a move towards separate gender-based welfare state classifications is a more difficult issue. Conducting separate gender analysis removes it from the mainstream and, as has been largely the case to date, it is therefore treated as an appendix to the main debate and analysis. The results of this article, especially in terms of highlighting the different welfare state arrangements that emerge when a concept such as defamilisation is used, suggests above all that analysis which acknowledges that gender is a form of social stratification within welfare states and welfare state regimes should be overtly, not implicitly or absentmindedly, undertaken as part of mainstream analysis. Combining gender stratification concepts, such as defamilisation, with others like the decommodification of labour (Esping-Andersen, 1990) or welfare services (Bambra, 2005a; 2005b), in a sound methodological manner is the only way

in which to build a truly holistic classification of welfare states and one in which there are potentially less disputed cases.

Conclusion

This cluster analysis of defamilisation has produced a five-fold welfare state typology. This is in stark contrast to the three-fold typologies proposed by previous analyses of defamilisation (Esping-Andersen, 1999; Korpi, 2000; Bambra, 2004). However, in common with the mainstream literature and previous defamilisation research, certain countries have emerged as core components of welfare state regimes. Most notably, the defamilisation analysis has highlighted the centrality of the USA, Germany and The Netherlands, and Norway and Sweden, as the foundation blocks of three regimes and, at least in terms of defamilisation, the UK and Japan for two more regimes. Much of this is in common with the main thrust of broader comparative welfare state analysis; however, certain clear differences have been highlighted and these suggest that defamilisation, or other concepts that are capable of encapsulating gender as one of the stratifications within welfare states and welfare state regimes, would be a useful conceptual addition to analyses of income protection and social expenditure (Bonoli, 1997; Castles & Mitchell, 1993; Esping-Andersen, 1990; Ferrera, 1996; Korpi & Palme, 1998; Leibfreid, 1992; Pitruzzello, 1999) or welfare service provision (Bambra, 2005ab). The usefulness of the concept of defamilisation has therefore been highlighted and rejuvenated by the use of a more robust method of analysis. Cluster analysis, and other more objective means of analysing welfare state differences and similarities, should be more apparent within future attempts at welfare state modelling. Previous attempts at welfare state classification, especially in terms of defamilisation (Esping-Andersen, 1999; Bambra, 2006), have been undermined by the limited methods used (Bambra, 2006) and the prominent reliance upon eyeballing the data (Gough, 2001) and fitting it to a priori

assumptions (Bambra, 2006). Above all, then, this article has demonstrated the benefits of utilising a more methodologically robust approach to welfare state modelling. Future attempts at classification should therefore build upon this approach and develop a more holistic means of comparing welfare states, one which overtly acknowledges the role of gender stratification, and does so in a methodologically mature way.

Limitations

The analysis in this article is subject to a number of limitations. Firstly, defamilisation is measured using only three of the four original measures, as relative female wage had to be excluded on the grounds of multicollinearity. Furthermore, the conceptualisation of defamilisation in this article, reflecting its original usage (Bambra, 2004), is very centred on the labour market and subsequently it does not examine other more institutional aspects of welfare state provision. If other indicators, or more indicators, had been used the conclusions may have been different. Similarly, as cluster analysis requires quantifiable indicators, more 'qualitative' measures that may have been able to encapsulate aspects of institutional arrangements relevant to defamilisation (such as provision for income splitting within pension systems or pension contributions for time spent providing family care, e.g. Switzerland's *Erziehungsgutschriften* and *Betreuungsgutschriften*) could not be included in the analysis. The resulting defamilisation based welfare state regimes are therefore unable to reflect such institutional matters. Subsequently, caution should be applied to the results and their interpretation. Furthermore, as the data used in the analysis related only to the years 2003/2004, it is possible that the same analysis may produce different results if repeated for other years. Lastly, cluster analysis and other statistical techniques of regime construction could be viewed as overly quantifying to the detriment of the more qualitative and theoretical aspects of typology construction.

References

Arts W, Gelissen J (2002). Three worlds of welfare or more? *Journal of European Social Policy* 12: 137–158.

Bambra C (2004). The worlds of welfare: Illusory and gender-blind? *Social Policy and Society* 3: 201–212.

Bambra C (2005a). Worlds of welfare and the health care discrepancy. *Social Policy and Society* 4: 31–41.

Bambra C (2005b). Cash versus services: worlds of welfare and the decommodification of cash benefits and health care services. *Journal of Social Policy* 34:195–213.

Bambra C (2006). Decommodification and the worlds of welfare: Revisited. *Journal of European Social Policy* 16: 73–80.

Bonoli G (1997). Classifying welfare states: a two-dimension approach. *Journal of Social Policy* 26: 351–172.

Borchost A (1994). Welfare State Regimes, Women's Interests and the EC. In: Sainsbury D, ed. *Gendering Welfare States.* London, Sage.

Bussemaker J, Kersbergen K (1994). Gender and the Welfare State: Some Theoretical Reflections. In: Sainsbury D, ed. *Gendering Welfare States.* London, Sage.

Castles FG, Mitchell D (1993). Worlds of welfare and Families of Nations. In: Castles FG, ed. *Families of Nations: Patterns of Public Policy in Western Democracies.* Aldershot, Dartmouth.

Cramer D (2003). *Advanced Quantitative Data Analysis*. Maidenhead, Mcgraw-Hill.

Cutright P (1965). Political structure, economic development, and national social security programs. *American Journal of Sociology*. 70: 537–50.

Daly M (1994). Comparing Welfare States: Towards a Gender Friendly Approach. In: Sainsbury D ed. *Gendering Welfare States.* London, Sage.

Esping-Andersen G (1990). *The Three Worlds of Welfare Capitalism.* London, Polity.

Esping-Andersen G (1999). *Social Foundations of Post-Industrial Economies.* Oxford, Oxford University Press.

Fawcett H, Papadopoulos TN (1997). Social exclusion, social citizenship and decommodification: an evaluation of the adequacy of support for the unemployed in the European Union. *West European Politics*. 20: 1–30.

Ferrera M (1996). The Southern Model of Welfare in Social Europe. *Journal of European Social Policy.* 6: 17–37.

Gornick J, Jacobs J (1998). Gender, the welfare state and public employment: a comparative study of seven industrialised countries. *American Sociological Review*. 63: 688–710.

Gough I (2001). Social assistance regimes: A cluster analysis. *Journal of European Social Policy*. 11: 165–170.

Grimm L,Yarnold P (2000). *Reading and understanding more multivariate statistics*. Washington, American Psychological Association.

Hobson B (1994). Solo Mothers, Social Policy Regimes, and the logics of Gender. In: Sainsbury D, ed. *Gendering Welfare States.* London, Sage.

Kangas O (1994). The Politics of Social Security: on Regressions, Qualitative Comparisons and Cluster Analysis. In: Janoski T, Hicks A, eds. *The Comparative Political Economy of the Welfare State.* Cambridge, Cambridge University Press.

Kasza G (2002). The Illusion of Welfare Regimes. *Journal of Social Policy*. 31: 271–287.

Korpi W (2000). Faces of inequality: Gender, class and patterns of inequalities in different types of welfare states. *Social Politics.* 7:127–191.

Korpi W, Palme J (1998). The paradox of redistribution and the strategy of equality: welfare state institutions, inequality and poverty in the Western countries. *American Sociological Review* 63: 662–87.

Langan M, Ostner I (1991). Gender and Welfare: Towards a Comparative Framework. In: Room G ed. *Towards a European Welfare State.* Bristol, SAUS Publications.

Leibfried S (1992). Towards a European Welfare State. In: Ferge Z, Kolberg JE, eds. *Social Policy in a Changing Europe.* Frankfurt, Campus-Verlag.

Lewis J (1992). Gender and the Development of Welfare regimes. *Journal of European Social Policy*. 2: 195–211.

Lewis J, Ostner I (1995). Gender and the Evolution of European Social Policy. In Leibfreid S, Pierson P, eds. *European Social Policy.* Washington DC, Brookings Institute.

Lister R (1997). *Citizenship: Feminist Perspectives.* London, Macmillan.

Meyer T (1994). The German and British welfare state as employers: patriarchal or Emancipatory. In: Sainsbury D, ed. *Gendering Welfare States.* London, Sage.

O'Connor JS (1996). From women in the welfare state to gendering welfare state regimes. *Current Sociology* 44: 1–130.

Orloff A (1993). Gender and the Social Rights of Citizenship: The Comparative Analysis of Gender Relations ands Welfare States. *American Sociological Review* 58: 303–328.

Papadoupolos TN (1998). *Welfare support for the unemployed: a comparison of social policy responses to unemployment in 12 EU member states.* Dictoral thesis. University of York, UK.

Pascall G, Lewis J (2004). Emerging Gender Regimes and Policies for Gender Equality in a Wider Europe. *Journal of Social Policy* 33:3 73–394.

Pascall G, Manning N (2000). Gender and social policy: comparing welfare states in Central and East Europe and the former Soviet Union. *Journal of European Social Policy* 10: 240–266.

Pierson C (1998). *Beyond the Welfare State* London, Polity.

Pitruzzello S (1999). *Decommodification and the Worlds of welfare Capitalism: a Cluster Analysis.* Florence, European University Institute.

Ragin C (1994). Missing in the text) A qualitative comparative analysis of pension systems. In: Janoski T, Hicks A, eds. *The Comparative Political Economy of the Welfare state*. Cambridge, Cambridge University Press.

Sainsbury D (1999). Gender, Policy Regimes and Politics. In: Sainsbury D, ed. *Gender and Welfare State Regimes.* Oxford, Oxford University Press.

Siaroff A (1994). Work, welfare and gender equality: a new typology. In: Sainsbury D, ed. *Gendering Welfare States.* London, Sage.

Taylor-Gooby P (1996). The Response of Government: Fragile Convergence. In: George V, Taylor-Gooby P, eds. (1996). *European Welfare Policy.* London, Macmillan.

Therborn G (1987) Welfare State and Capitalist Markets. *Acta Sociologica* 30.

Titmuss R (1974). *Social Policy.* London, Allen and Unwin.

Trifiletti R (1999) Southern European welfare regimes and the worsening position of women. *Journal of European Social Policy*. 9:49–64.

United Nations (2005). *Statistics and indicators on men and women*, downloadable from http://unstats.un.org/unsd/demographic/products/indwm/ accessed 10/04/05.

Wilensky H (1975). *The Welfare State and Equality.* Berkeley, University of California Press.

Wilensky H, Lebaux C (1958). *Industrial Society and Social Welfare*. New York, Russell Sage.

Table 1. Welfare state classifications.

	Welfare State Regimes					
	Liberal	*Conservative*	*Social Democratic*	*Latin Rim*	*Radical*	*Bismarckian*
Esping-Andersen (1990; 1999) 18 countries	Australia Canada Ireland New Zealand UK USA	Finland France Germany Japan Italy Switzerland	Austria Belgium Netherlands Denmark Norway Sweden			
Leibfreid (1992) 15 countries	Australia New Zealand UK USA	Austria Germany	Denmark Finland Norway Sweden	France Greece Italy Portugal Spain		
Castles & Mitchell (1993) 18 countries	Ireland Japan Switzerland USA	Germany Italy Netherlands	Belgium Denmark Norway Sweden		Australia New Zealand UK	
Ferrera (1996) 15 countries	Ireland UK	Austria Belgium France Germany Luxembourg Netherlands Switzerland	Denmark Finland Norway Sweden	Greece Italy Portugal Spain		
Bonoli (1997) 16 countries	Ireland UK	Belgium France Germany Luxembourg Netherlands	Denmark Finland Norway Sweden	Greece Italy Portugal Spain Switzerland		
Korpi & Palme (1998) 18 countries	Canada Denmark Ireland Netherlands New Zealand Switzerland UK USA	Austria Belgium France Germany Italy Japan	Finland Norway Sweden		Australia	
Pitruzzello (1999) 18 countries	Canada Ireland UK USA	Germany Netherlands Switzerland	Belgium Denmark Norway Sweden		Australia New Zealand	Austria Finland France Italy Japan
Korpi (2000) 18 countries	Australia Canada Japan New Zealand Switzerland UK USA	Austria Belgium France Germany Ireland Italy Netherlands	Denmark Finland Norway Sweden			

Author	Australia	Austria	Denmark
Reference	Japan	Belgium	Finland
(2004)	New Zealand	Canada	Norway
	USA	France	Sweden
18 countries		Germany	
		Ireland	
		Italy	
		Netherlands	
		Norway	
		Switzerland	
		UK	

Table 2. Defamilisation data 2003/2004.

	Relative female economic activity rate for persons aged 15-64[(i)]	Maternity Leave Compensation for duration covered (% of normal wages)	Compensated Maternity Leave Duration (number of weeks)	Average Female Wage (% of male average wage)[(ix)]
	2003	2004	2004	2003
Australia	15	0	0	89[(ii)]
Austria	17[(ii)]	100	16	60[(x)]
Belgium	16	75[(iii)]	15	81[(xi)]
Canada	12[(ii)]	55[(iv)]	18	[(xii)]
Denmark	9	90[(v)]	18	87[(ii)]
Finland	6	70	21	83[(ii)]
France	14	100[(v)]	16	78[(ii)]
Germany	16	100	14	74
Greece	23[(ii)]	100	17	82[(xiii)]
Ireland	21[(ii)]	70	18	69
Italy	25	80	22	[(xii)]
Japan	26	60	14	60
Netherlands	17	100	16	78[(xiv)]
New Zealand	15	100[(v)]	14	80
Norway	8	100[(vi)]	52	88
Portugal	15	100	17	64[(xi)]
Spain	24	100	16	[(xii)]
Sweden	4	80[(vii)]	69	91
Switzerland	18	80	14	69[(xi)]
UK	16[(viii)]	50	26	79
USA	14	0	0	[(xii)]

(i) Calculated as the difference between the female and male labour participation rate. For example, if the male participation rate was 78.9 percent and the female participation rate was 76.4 percent then the relative female labour participation rate would be (-) 2.5 percent.
(ii) Data from 2002
(iii) 82% for the first 30 days, 755 for the rest (up to a ceiling)
(iv) 17-18 weeks depending on province (up to a ceiling)
(v) Up to a ceiling
(vi) 42-52 weeks parental leave (9 weeks reserved for mother) at 80-100%
(vii) Parental leave, 80% for 390 days, 90 days at flat rate
(viii) 90% for first 6 weeks and flat rate after
(ix) Wages in manufacturing
(x) Data from 2001
(xi) Data from 1999
(xii) No sex segregated data available
(xiii) Data from 1998
(xiv) Data from 2000

(Based on: author reference, 2004; UN, 2005)

Figure 1. Relative female economic activity rate for persons aged 15-64 (2003).

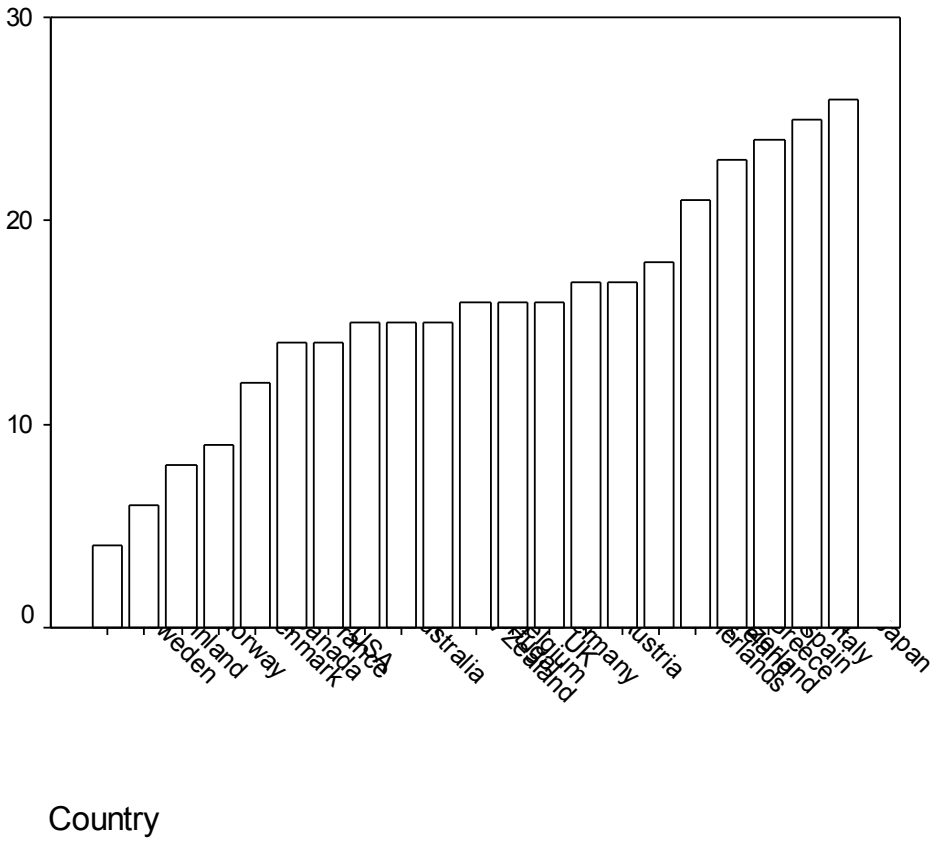

Figure 2. Maternity leave compensation as % of wages (2004).

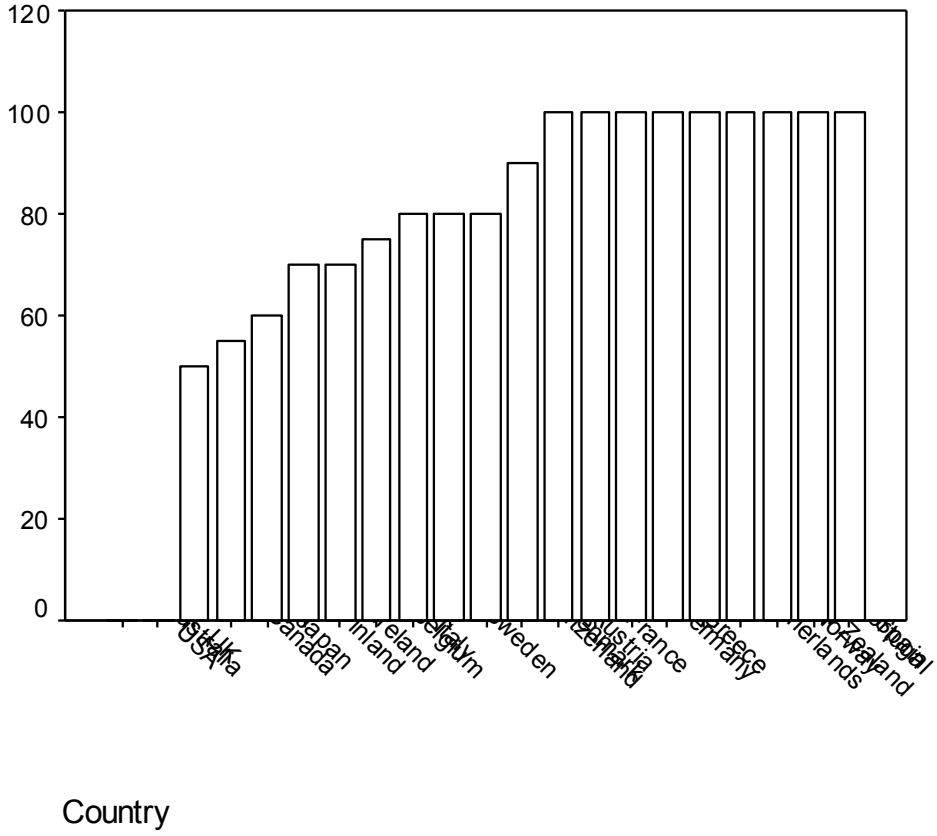

Figure 3. Compensated Maternity Leave Duration in weeks (2004).

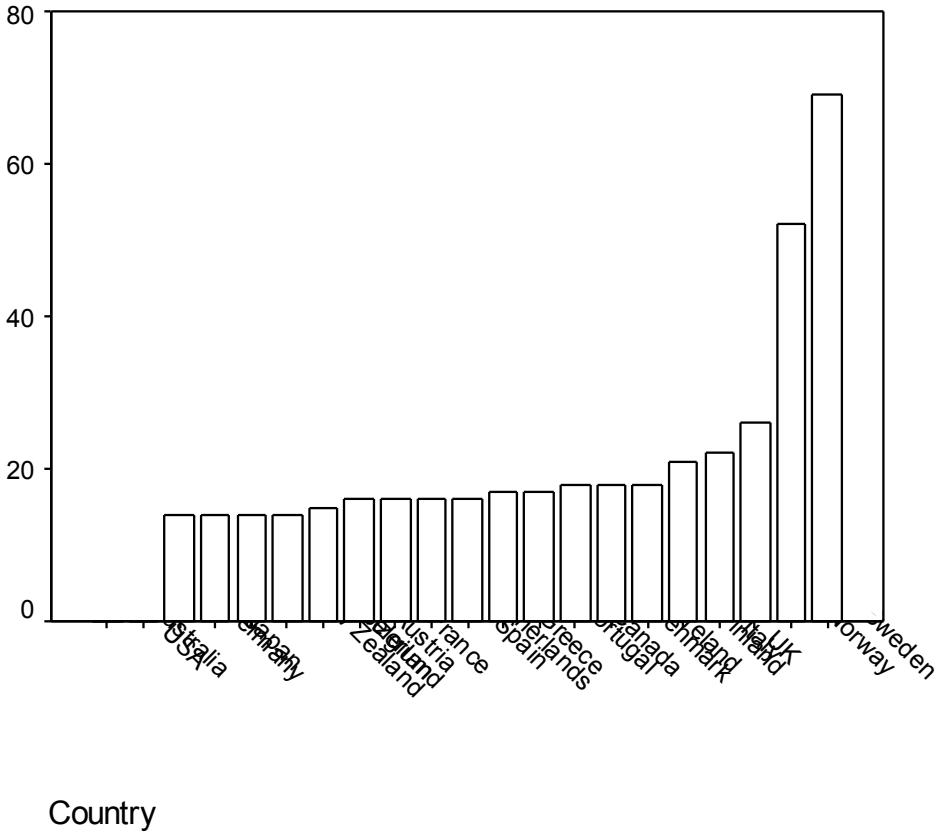

Table 3. Hierarchical cluster analysis proximity matrix.

	Squared Euclidian Distance*																			
Country	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Japan	Netherlands	N. Zealand	Norway	Portugal	Spain	Sweden	Switzerland	UK
Austria	12.1																			
Belgium	7.1	0.7																		
Canada	5.0	2.9	0.9																	
Denmark	11.2	1.9	1.7	1.6																
Finland	9.6	4.5	3.0	1.3	0.7															
France	12.1	0.0	0.8	2.3	0.8	2.9														
Germany	11.8	0.1	0.7	2.7	1.6	4.0	0.1													
Greece	13.9	1.0	2.1	5.6	5.7	9.2	2.3	1.4												
Ireland	7.8	1.4	0.8	2.5	4.5	6.4	2.4	1.8	1.1											
Italy	11.9	2.4	2.5	5.5	7.4	10.3	4.0	3.0	0.7	0.6										
Japan	8.2	4.0	0.9	5.6	9.2	11.6	5.8	4.6	2.0	0.9	0.8									
Netherlands	12.1	0.0	0.7	2.9	1.9	4.5	0.3	0.1	1.0	1.5	2.4	4.0								
N. Zealand	11.7	0.1	0.7	2.5	1.2	3.5	0.1	0.0	1.8	2.1	3.5	5.2	0.1							
Norway	24.2	8.0	8.5	7.8	5.2	5.3	6.7	8.2	11.8	10.9	12.6	17.3	8.0	7.8						
Portugal	12.1	0.1	0.7	2.5	1.1	3.3	0.0	0.1	1.8	2.0	3.4	5.2	0.1	0.0	6.8					
Spain	14.3	1.4	2.5	6.3	6.5	10.2	2.8	1.8	0.0	1.2	0.6	1.9	1.4	2.3	13.0	2.3				
Sweden	31.4	17.6	17.0	14.0	12.3	10.4	15.7	17.9	22.6	19.8	22.2	27.5	17.6	17.2	2.2	15.8	24.1			
Switzerland	8.1	0.5	0.2	1.8	2.5	4.4	0.9	0.6	1.2	0.4	1.7	2.2	0.5	0.7	9.6	0.7	1.5	18.9		
UK	5.7	3.2	1.2	0.8	3.4	3.4	3.3	3.4	4.5	1.4	3.3	3.6	3.2	3.4	7.5	3.1	5.0	13.2	1.7	
USA	0.0	12.2	7.2	4.8	10.9	9.1	12.0	11.8	14.4	8.1	12.5	8.8	12.2	11.8	23.8	12.2	14.8	30.8	8.3	5.8

*Rounded to 1 decimal place

Figure 4. Hierarchical cluster analysis dendrogram (21 countries).

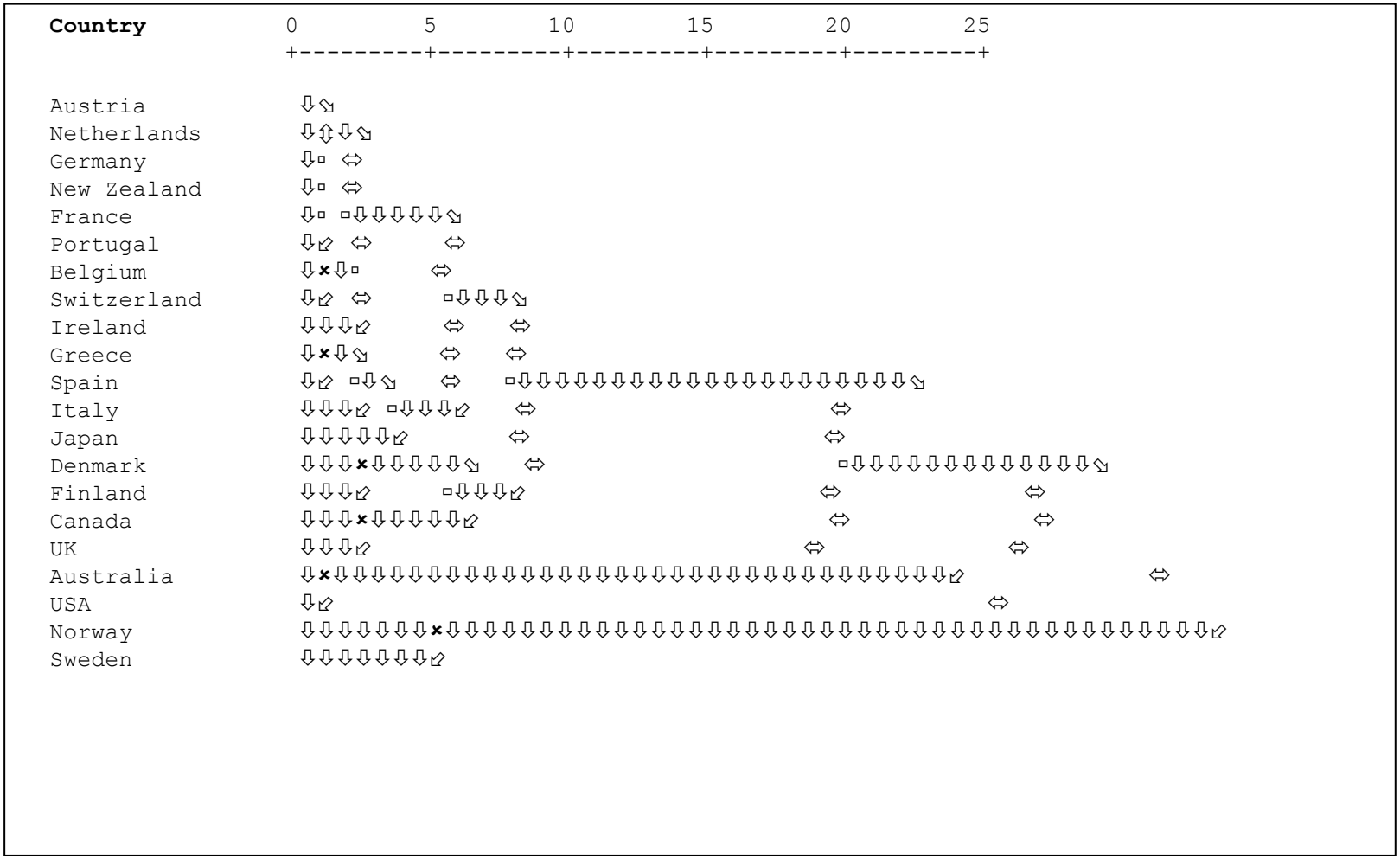

Figure 5. Hierarchical cluster analysis dendrogram – omitting Australia, Norway, Sweden and the USA (17 countries).

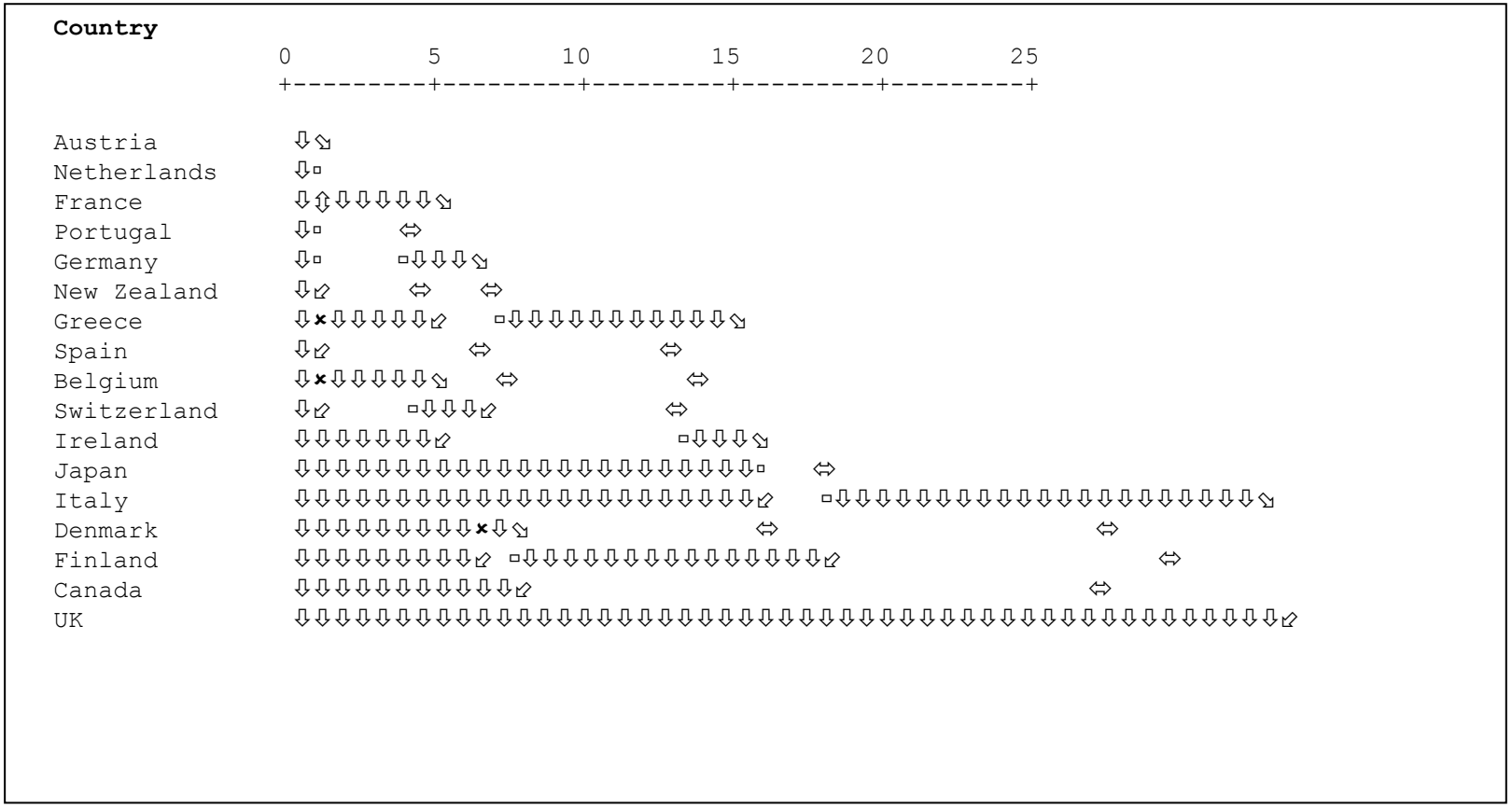

Table 4. K-means clusters.

Two Clusters			**Three Clusters**			**Four Clusters**			**Five Clusters**		
K	*Country*	*Distance**	*K*	*Country*	*Distance**	*K*	*Country*	*Distance**	*K*	*Country*	*Distance**
1	Australia	2.7	*1*	Australia	0.2	*1*	Australia	0.2	*1*	Australia	0.17
	Austria	0.8		Canada	2.2		USA	0.0		USA	0.0
	Belgium	0.1		Finland	3.0						
	Canada	1.1		USA	0.0	*2*	Austria	1.4	*2*	Austria	0.0
	Denmark	1.4					Belgium	1.3		Belgium	0.84
	Finland	1.9	*2*	Austria	1.2		Canada	1.3		Denmark	1.4
	France	0.9		Belgium	1.6		Denmark	0.0		France	0.50
	Germany	0.8		Denmark	2.5		Finland	0.9		Germany	0.21
	Greece	1.3		France	1.7		France	0.9		Greece	1.01
	Ireland	0.8		Germany	1.4		Germany	1.3		Netherlands	0.0
	Italy	1.5		Greece	0.2		Netherlands	1.4		New Zealand	0.36
	Japan	1.6		Ireland	1.1		New Zealand	1.1		Portugal	0.34
	Netherlands	0.8		Italy	0.8		Portugal	1.1		Spain	1.18
	New Zealand	0.9		Japan	1.4		UK	1.8		Switzerland	0.69
	Portugal	0.9		Netherlands	1.2						
	Spain	1.5		New Zealand	1.5	*3*	Greece	1.4	*3*	Ireland	0.94
	Switzerland	0.3		Portugal	1.5		Ireland	0.9		Italy	0.86
	UK	1.1		Spain	0.0		Italy	0.9		Japan	0.0
	USA	2.7		Switzerland	1.2		Japan	0.0			
				UK	2.2		Spain	1.4	*4*	Canada	0.87
2	Norway	0.7					Switzerland	1.5		Finland	1.84
	Sweden	0.7	*3*	Norway	1.5					UK	0.0
				Sweden	0.0	*4*	Norway	1.5			
							Sweden	0.0	*5*	Norway	1.47
										Sweden	0.0

*Rounded to 1 decimal place

Table 5. K-means final cluster centres.

		Zscore: Activity*	Zscore: Compensation*	Zscore: Duration*
Two Clusters	*1*	0.17	-0.05	-0.29
	2	-1.64	0.44	2.71
	F	8.05	0.41	83.28
Three Clusters	*1*	-0.67	-1.50	-0.66
	2	0.40	0.34	-0.19
	3	-1.64	0.44	2.71
	F	8.29	11.19	50.83
Four clusters	*1*	-0.21	-2.53	-1.31
	2	-1.64	0.44	2.71
	3	-0.31	0.29	-0.15
	4	1.19	0.16	-0.19
	F	17.09	14.00	76.58
Five Clusters	*1*	-0.21	-2.53	-1.31
	2	0.16	0.60	-0.26
	3	-1.64	0.44	2.71
	4	-0.74	-0.60	0.13
	5	1.38	-0.22	-0.11
	F	7.73	46.23	75.64

*Rounded to 2 decimal places

Table 6. Distances between final cluster centres.*

	Clusters				
		1	*2*		
Two Clusters	*1*		3.54		
	2	3.54			
		1	*2*	*3*	
Three Clusters	*1*		2.18	4.00	
	2	2.18		3.54	
	3	4.01	3.54	4.01	
		1	*2*	*3*	*4*
Four Clusters	*1*		5.20	3.05	3.23
	2	5.20		3.16	4.06
	3	3.05	3.16		1.51
	4	3.23	4.06	1.51	
		1	*2*	*3*	*4*	*5*
Five Clusters	*1*		3.32	5.20	2.46	3.05
	2	3.32		3.48	1.56	1.48
	3	5.20	3.48		2.93	4.19
	4	2.46	1.56	2.93		2.18
	5	3.05	1.48	4.19	2.18	

*Rounded to 2 decimal places

Table 7. Final Defamilisation Clusters (Hierarchical and K=5 combined).

1	2	3	4	5	Unclear cases
Australia USA	Austria Belgium France Germany Netherlands New Zealand Portugal Switzerland	Italy Japan	Canada Finland UK	Norway Sweden	Denmark Ireland Greece Spain